(Currently Amended) 1. An optical device comprising:

a ~~freestanding~~ deformable membrane comprising a plurality of thin-film layers represented by L(i), i=1, 2, 3, …, N where N is a positive odd integer; and

said deformable membrane having a mirror symmetrical layer structure relative to a middle layer L(m) where m=(N+1)/2, and layer L(m-j) and layer L(m+j) having a same stress response-characteristic during a membrane deformation ~~thickness, material composition, shape and size~~, where j=1, 2, 3, …,(N-1)/2.

(Currently Amended) 2. The optical device of claim 1 further comprising:

an ~~electromagnetic~~ means for ~~controlling~~ ~~and moving~~ deforming said ~~freestanding~~ membrane.

(Original) 3. The optical device of claim 1 wherein:

said layers L(i) having an alternate high-low refraction index configuration with layers $L(i_H)$ having a set of relatively higher refraction indexes and layers $L(i_L)$ having a set of relatively lower refraction indexes where i_H = 1, 3, 5, N and i_L =2, 4, 6, …, (N-1).

(Original) 4. The optical device of claim 1 wherein:

said layers L(i) having an alternate high-low refraction index configuration with layers $L(i_H)$ having a set of relatively higher refraction indexes and layers $L(i_L)$ having a set of relatively lower refraction indexes where i_L = 1, 3, 5, …,N and i_H =2, 4, 6, …, (N-1).

(Currently Amended) 5. The optical device of claim 1 further comprising:

a resonant cavity supported on a silicon substrate covered by said ~~freestanding~~ membrane.

(Original) 6. The optical device of claim 5 further comprising:

an antireflection (AR) layer coated on the bottom of said silicon substrate.

(Original) 7. The optical device of claim 1 wherein:

at least one of said layers L(i), i =1, 2, 3, ...N, is a polysilicon layer.

(Original) 8. The optical device of claim 1 wherein:

at least one of said layers L(i), i =1, 2, 3, ...N, is a silicon nitride layer.

(Currently Amended) 9. The optical device of claim 1 further comprising:

a HR coating layer coated on said ~~freestanding~~ membrane.

(Currently Amended) 10. A ~~freestanding~~ deformable membrane manufactured by a micro-opto-electromechanical- system (MOEMS) technology comprising:

a plurality of thin-film layers represented by L(i), i=1, 2, 3, ..., N where N is a positive odd integer; and

said thin film layers having a mirror symmetrical layer structure relative to a middle layer L(m) where m=(N+1)/2, and layer L(m-j) and layer L(m+j) having a same stress response-characteristic during a membrane deformation ~~thickness, material composition, shape and size,~~ where j=1, 2, 3, ...,(N-1)/2.

(Currently Amended) 11. An method for manufacturing an optical device comprising:

forming a ~~freestanding~~ deformable membrane with a plurality of thin-film layers represented by L(i), i=1, 2, 3, ..., N where N is a positive odd integer; and

configuring said thin film layers with a mirror symmetrical layer structure relative to a middle layer L(m) where m=(N+1)/2, and layer L(m-j) and layer L(m+j) having a same stress response-characteristic during a membrane deformation ~~thickness, material composition, shape and size~~, where j=1, 2, 3, ...,(N-1)/2.

(Currently Amended) 12. The method of claim 11 further comprising:

~~controlling and moving~~ deforming said ~~freestanding~~ membrane with an ~~electromagnetic~~ membrane-deforming means.

(Original) 13. The method of claim 11 wherein:

said step of configuring said thin film layers further comprising a step of configuring said layers L(i) with an alternate high-low refraction index configuration with layers $L(i_H)$ having a set of relatively higher refraction indexes and layers $L(i_L)$ having a set of relatively lower refraction indexes where i_H = 1, 3, 5, N and i_L =2, 4, 6, ..., (N-1).

(Original) 14. The method of claim 11 wherein:

said step of configuring said thin film layers further comprising a step of configuring said layers L(i) with an alternate high-low refraction index configuration with layers $L(i_H)$ having a set of relatively higher refraction indexes and layers $L(i_L)$ having a set of relatively lower refraction indexes where i_L = 1, 3, 5, ...,N and i_H =2, 4, 6, ..., (N-1).

(Currently Amended) 15. The method of claim 11 further comprising:

supporting a resonant cavity on a silicon substrate and covering said resonant cavity with said ~~freestanding~~ deformable membrane.

(Original) 16. The method of claim 11 further comprising:

coating an antireflection (AR) layer on the bottom of said silicon substrate.

(Original) 17. The method of claim 11 wherein:

said step of configuring said thin-film layers further comprising a step of forming a polysilicon layer for at least one of said layers L(i), i =1, 2, 3, …N.

(Original) 18. The method of claim 11 wherein:

said step of configuring said thin-film layers further comprising a step of forming a silicon nitride layer for at least one of said layers L(i), i =1, 2, 3, …N.

(Original) 19. The method of claim 11 further comprising:

coating a HR coating layer on said ~~freestanding~~ membrane.

(Currently Amended) 20. A method of forming a ~~freestanding~~ deformable membrane by using a micro-opto-electromechanical-system (MOEMS) technology comprising:

forming a plurality of thin-film layers represented by L(i), i=1, 2, 3, ..., N where N is a positive odd integer; and

configuring said thin film layers with a mirror symmetrical layer structure relative to a middle layer L(m) where m=(N+1)/2, and layer L(m-j) and layer L(m+j) having a same stress response-characteristic during a membrane deformation ~~thickness, material composition, shape and size~~, where j=1, 2, 3, ...,(N-1)/2.